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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,208	11/12/2003	Anand Chellappa	70279.011200	8296

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EXAMINER	
CHEN, BRET P	

ART UNIT	PAPER NUMBER
1792	

MAIL DATE	DELIVERY MODE
11/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/712,208	CHELLAPPA ET AL.	
	Examiner	Art Unit	
	Bret Chen	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-18 and 21-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9, 11-18, 21-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-9, 11-18, 21-25 are pending in this application. The arguments presented in the Request for Reconsideration dated 8/14/08 was deemed persuasive in view of the Chellappa Declaration.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-9, 11-18, 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brophy et al. (2004/0034266) in view of Ewasyshyn et al. (2003/0219542).

Brophy discloses method of producing hydrocarbons by oxidative hydrocarbons in a reactor (P2). Specifically, Brophy teaches that reactor walls can be coated with a passivation layer to reduce coking and that the coating materials can include refractory oxide such as silica, alumina, zirconia, titania, chromia, ceria, Group II metals (alkaline earths) and rare earth metals, atomic numbers 57-71 (P77). The passivation coating could, optionally, be catalytic supports or could be dense coatings to protect an underlying metal wall and can be applied a number of techniques including chemical or physical vapor deposition or electrochemical deposition, or thermally-grown, or combinations of these techniques (P77). The wall can be stainless steel or inconel (P60) and can contain channels (P25) and microchannels less than 2mm (P28,60). However, the reference fails to teach cold spraying.

Ewasyshyn discloses a method of forming dense coatings by gas dynamic spraying in which a compressed gas is expanded through a supersonic nozzle and powder containing a

mixture of at least one material selected from the group consisting of metals and metal alloys and at least one ceramic material is introduced into the gas flow slightly downstream of the throat of the nozzle (0010). In one embodiment, the powder can be metal oxides (0033). It would have been obvious to utilize the cold spraying technique of Ewasyshyn in the process of Brophy with the expectation of obtaining the known advantages including producing a denser coating.

The limitation of claims 2, 4, 5 have been addressed above.

In claim 3, the applicant requires a specific percentage. It is the examiner's position that some ration of oxide to metal exists in the material layer as the reference clearly teaches a metal oxide as noted above. Varying percentages is well known in the art in optimizing properties and would have been obvious to do in routine experimentation and in the absence of a showing of criticality with the claimed percentage.

In claims 6-9, the applicant requires coating the tube. Brophy specificially teaches of applying a passivating layer to reduce coking. One skilled in the art would reasonably expect that any surface exposed to the carbon impurities should be coated to reduce coking. Hence, it would have been obvious to coat the tube surface in the reactor with the expectation of reducing coking. The same issue applies to claims 11-12 directed to a cover and 17-18 directed to protrusions.

The limitations of claims 13-14 have been addressed above.

In claims 15-16, the applicant requires leaving uncoated portions for the expressed purpose of joining. One skilled in the art knows that coating with an oxide film reduces the ability to join two materials. For example, it is clearly more difficult to "weld" two oxide

surfaces as opposed to two metals. It one skilled in the art desired to join two materials, it would not be beyond the skilled artisan to not coat the joining surfaces with an oxide film.

The limitations of claims 20-21 have been addressed above.

In independent claims 23-25, the applicant phrases the general concept of reducing coking in the preamble. The subject matter has been addressed above.

Response to Arguments

Applicant's arguments with respect to claims above have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bret Chen whose telephone number is (571)272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bret Chen/
Primary Examiner, Art Unit 1792
11/3/08